

# Collisions with people in sports

On average, each hour, 3 people visit an emergency department for an injury due to a sport-related collision with another person. Hockey injuries in males 15-19 years of age contribute to the majority of ER visits and hospitalizations.

## Results

For the purposes of this report, all incidents involving striking against or being bumped into by another person in skiing/snowboarding, hockey, football/rugby, tobogganing, soccer, baseball, or another sport/recreation were included in data analysis. All incidents involving striking against or being bumped into by another person in a non sport situation were excluded from analysis.

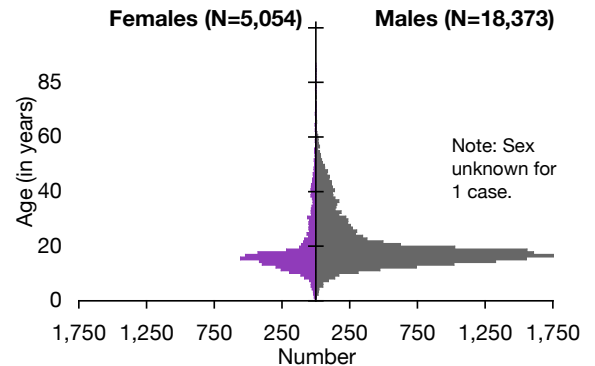
During the 2005/06 fiscal year, there were a total of 23,428 emergency department visits and 629 hospitalizations due to incidents involving collisions with people in sports. (See Methods Section for Data Sources). These numbers translate into provincial rates of 198.3 per 100,000 population for emergency department visits and 5.3 per 100,000 for hospitalizations (Table 1).

Males accounted for 78% of emergency department visits and 84% of hospitalizations. In particular, males 15 to 19 years of age had the highest numbers and rates of emergency department visits and hospitalizations.

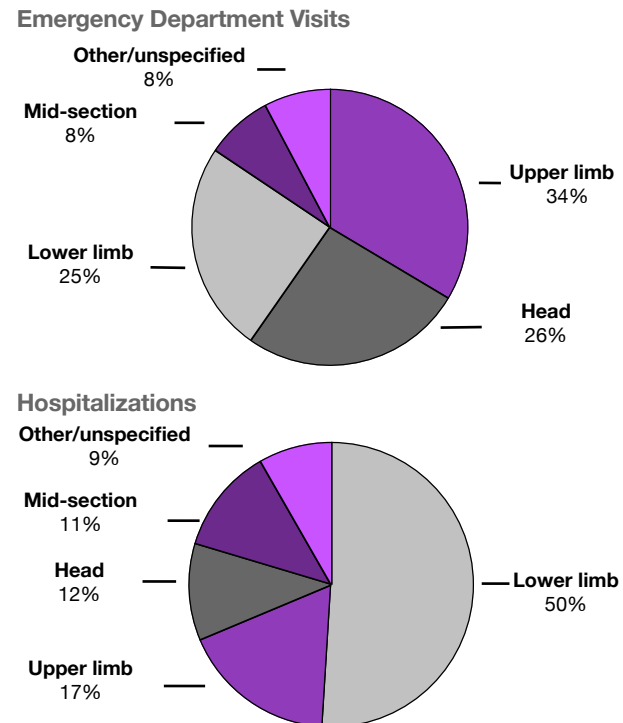
For emergency department visits, injuries to the upper limb, including the wrist, hand, elbow, forearm, shoulder, and upper arm were the most common, accounting for 34% of all visits. For hospitalizations, injuries to the lower limb, including the ankle, foot, knee, lower leg, hip and thigh, were the most frequent, accounting for 50% of all hospitalizations (Figure 2). More specifically, head injuries, which encompasses all injuries to the ear, face, or nose, were the most common reason for emergency department visits and closed fracture of the tibia was the most common injury for hospitalizations.

Injuries sustained as a result of a collision while participating in hockey was the most commonly reported reason for emergency department visits and hospitalizations.

**FIGURE 1. Emergency department visits due to collision with people in sports by age and sex (Ontario, 2005/2006)**



**FIGURE 2. Nature of injuries due to collisions with people in sports (Most responsible diagnosis, Ontario, 2005/2006)**



**TABLE 1. Regional comparison of injuries due to collisions with people in sports (Ontario, 2005/06)**

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits</b>								
Number	4,297	2,336	3,760	4,581	2,199	3,930	2,051	23,428
Rate per 100,000 <sup>a</sup>	282.7	206.5	162.3	210.3	94.7	253.8	250.5	198.3
Average Age	19	19	20	19	21	19	19	19
% male	79	80	78	79	82	76	77	78
<b>Hospitalizations</b>								
Number	96	92	114	99	76	99	44	629
Rate per 100,000 <sup>a</sup>	6.5	8.5	5.0	4.7	3.2	6.3	5.1	5.4
Average Age	20	22	24	20	25	22	23	22
% male	90	82	78	85	89	80	82	84

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 274 emergency department visits and 9 hospitalizations.



## Ontario Injury Compass

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Edited by

**Philip Groff, PhD**

Director,

Research and Evaluation

Ontario Injury Prevention Resource

Centre at SMARTRISK

(416) 596-2718

pgroff@smartrisk.ca

Principal Analyst

**Pamela Farmer, MSc**

Research Associate

Ontario Injury Prevention Resource

Centre at SMARTRISK

(416) 596-2720

pfarmer@smartrisk.ca



**Ontario Injury Prevention Resource Centre**

1-888-537-7777

info@oninjuryresources.ca

www.OnInjuryResources.ca

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**TABLE 2. Regional comparison of injuries due to collisions with people in sports by age group (Ontario, 2005/06)**

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits- Rate per 100,000<sup>a</sup></b>								
10-14 years	1184.8 (1284)	870.8 (704)	596.2 (1001)	842.8 (1350)	329.7 (490)	1039.4 (1139)	1082.8 (639)	799.4 (6671)
15-19 years	1510.4 (1671)	1036.8 (850)	802 (1292)	1068.2 (1683)	431.9 (636)	1381.2 (1509)	1216.8 (752)	1024.3 (8497)
20-24 years	358.7 (398)	280 (226)	242.9 (397)	275.3 (394)	130.6 (235)	309.4 (342)	296.3 (170)	260.8 (2207)
<b>Hospitalizations- Rate per 100,000<sup>a</sup></b>								
10-14 years	19.4 (21)	26 (21)	11.3 (19)	17.5 (28)	8.1 (12)	18.3 (20)	18.6 (11)	15.9 (133)
15-19 years	30.7 (34)	34.2 (28)	23 (37)	24.8 (39)	14.3 (21)	31.1 (34)	32.4 (20)	26.2 (217)
20-24 years	15.3 (17)	11.1 (9)	8.6 (14)	4.9 (7)	4.4 (8)	13.6 (15)	/ (<5)	8.9 (75)

a. Age-specific rate (and number) per 100,000 population. Note: Region of residence unknown/outside of Ontario for 274 emergency department visits and 9 hospitalizations.

Injury rates varied by region with the highest rate of emergency department visits for injuries, due to a collision with people in sports, reported in the South West region of Ontario and the highest rate of hospitalizations reported in the Central South. (Table 1). In all regions, the highest rate of emergency department visits and hospitalizations were among youth aged 15-19 (Table 2).

Over 95% of individuals who visited an emergency department for an injury sustained from a collision while participating in a sport, were discharged to their place of residence. For hospitalized cases, 94% of patients were discharged home. Fewer than 1% of individuals died after arrival in the emergency department and fewer than 1% died after hospital admission. The 629 hospitalized cases accounted for more than 1460 days in acute care hospitals with an average length of stay of 2.3 days.

## Discussion

This Compass highlights patterns of emergency department visits and hospitalizations for injuries sustained from collisions with people in sports in Ontario.

Much of the literature on sports related injuries focuses on those injuries sustained while participating in ice hockey<sup>1,2,3,4,5</sup>, as a majority of injuries sustained as a result of colliding with other people in a sports setting are associated with this sport. Body checking, in particular, is a predominant focus in much of the literature, as it is the most common cause of youth hockey injuries.<sup>1</sup> Further, impact of the head with the

## References

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boards after being checked is the most common cause of spinal cord injuries in hockey.<sup>6</sup>

As a result of body checking, many youth hockey players experience whiplash (neck injuries) and present the symptoms of a concussion.<sup>3</sup>

Dental injuries are another common type of injury for individuals participating in contact sports; however, despite the frequency at which youth are sustaining these types of injuries, a study on mouth-guard use in children 12-14 years of age in Ontario found that use in school and league sports is very low.<sup>7</sup>

## Managing the risk

- ❖ Preventive measures, including the enforcement of rules regarding equipment and appropriate play, should be a top priority. For example:
  - Enforce rule prohibiting checking in hockey, specifically in minor hockey programs.<sup>2</sup> Research demonstrates that when checking is allowed, there is an increase in checking injuries and, in some age groups, an increase in the odds of suffering a concussion or fracture.<sup>1</sup>
  - Enforce rule which requires all contact sports participants to wear mouth-guards in addition to the various equipment which is already required during play. To increase compliance, parental and coaching advice on the importance of consistent use is recommended.
- ❖ Increase the ice surface area for hockey players as this has been shown to reduce the risk of injury to players.<sup>5</sup>
- ❖ Educate players with the use of videos highlighting injury prevention topics for their particular sport. For example, increase awareness on the mechanisms, outcomes and ways to prevent spinal cord and brain injuries in hockey players.<sup>6,8</sup>

### For Further Information

ThinkFirst Foundation of Canada

www.thinkfirst.ca

Ontario Neurotrauma Foundation

www.onf.org

Institute for Clinical Evaluative Sciences

www.ices.on.ca

## Methods

Emergency department data were obtained from the National Ambulatory Care Reporting System and acute care hospitalization data were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information for the 2005/06 fiscal year. ICD-10 coding (W51.00, W51.01, W51.02, W51.03, W51.04, W51.05, W51.07, W51.09) was used to isolate all emergency department visits and hospitalizations for injuries resulting from collisions with people in sports. Note that some persons were seen in an emergency department and then admitted to hospital; however, persons can be admitted to hospital without visiting an emergency department. Regions were defined according to place of residence using the Ontario Ministry of Health Region Codes. Deaths occurring outside of the hospital setting were not included in this analysis.